

GROUP ART UNIT: 1714

APPEAL NO. _____



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

APPEAL BRIEF

In re the Application of NORRIS

Filed: October 17, 2001

Serial No. 09/981,339

For: A HALOGEN-CONTAINING POLYMER COMPOSITION STABILIZED BY A
LATENT MERCAPTAN AND A MIXTURE OF A ZINC CARBOXYLATE AND
ZINC CHLORIDE

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Application No. : 09/981,339

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LATENT MERCAPTAN AND A MIXTURE OF A ZINC CARBOXYLATE AND
ZINC CHLORIDE

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

This is an appeal from the rejection dated January 12, 2004 finally rejecting Claims 1-35. The rejected claims are set out in the Appendix. Appellants filed a Notice of Appeal pursuant to 37 C.F.R. § 1.191 on May 10, 2004.

(1) Real Party In Interest

The owner of the present application and the invention contained therein is ROHM AND HAAS COMPANY.

(2) Related Appeals and Interferences

No appeals or interferences are known to appellants, the appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status Of Claims

The status of the claims is as follows:

Claims pending: 1-6 and 9-35.

Claims cancelled: 7 and 8.

Claims rejected: 1-6 and 9-35.

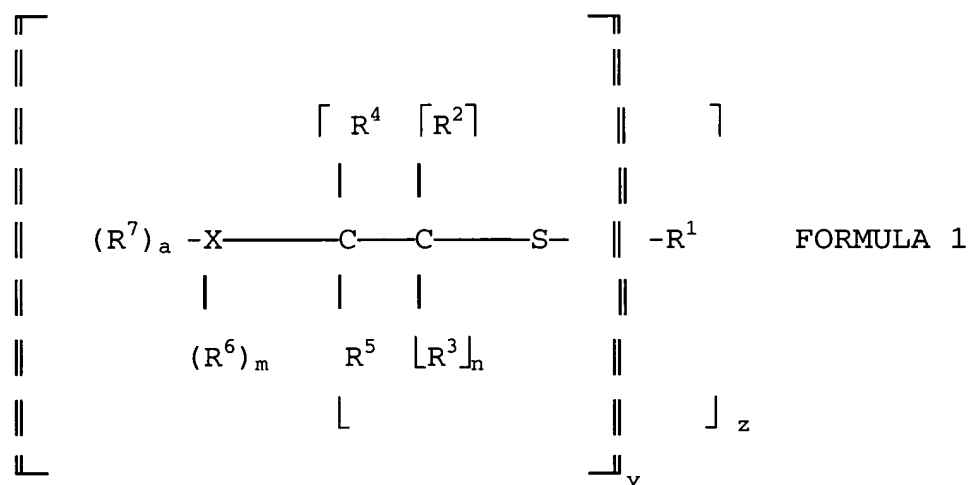
Claims on appeal: 1-6 and 9-35.

It is noted that the final Office Action incorrectly states that Claims 1-35 are pending in the present application and are rejected therein. The Amendment filed by Applicant on November 20, 2003 was entered by the Examiner and the claim amendments therein (CLAIM LISTING, pages 3-12) included cancellation of Claims 7-8, leaving only Claims 1-6 and 9-35 pending in the present application. In the foregoing circumstances, only the rejections of Claims 1-6 and 9-35 are under appeal and addressed hereinafter.

(4) Status Of Amendments After-Final Rejection

No Amendments After Final Rejection have been filed. In the foregoing circumstances, Claims 1-6 and 9-35 are presented herein, in clean form and including amendments made by the most recent Amendment filed November 20, 2003.

One aspect of the present invention is a polymer composition normally susceptible to heat-induced decomposition comprising a halogen-containing polymer, the degradation products of a blocked mercaptan present during processing of the composition at an elevated temperature, said products including a free mercaptan; said blocked mercaptan having the structure:



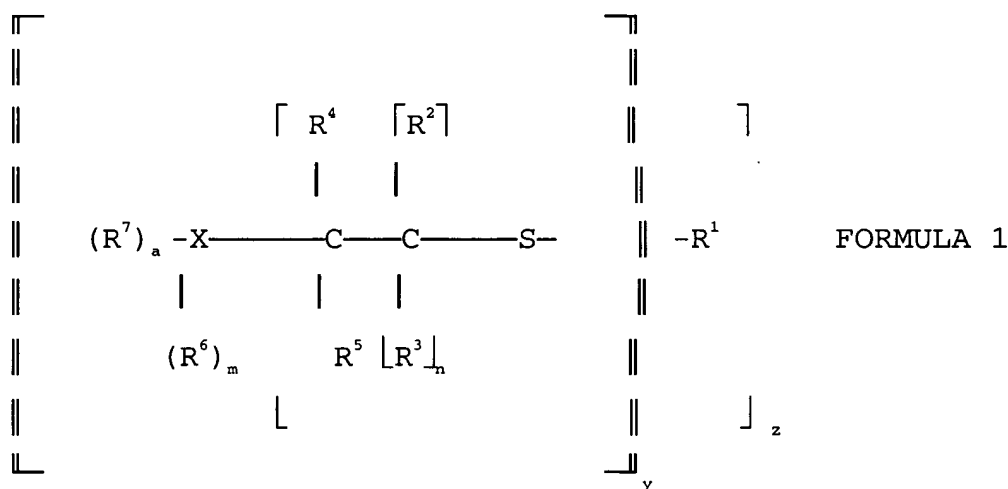
wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, hydroxyalkyl, dihydroxyalkyl, hydroxy(polyalkoxy)alkyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl), alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl, carboxyalkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzoyloxy(polyalkoxy)alkyl, alkylenebis-(acyloxyalkyl), alkoxy carbonylalkyl, alkoxy carbonylalkylenyl, hydroxyalkoxy carbonylalkyl, hydroxy(polyalkoxy)carbonylalkyl, mercaptoalkyl, mercaptoalkylenyl, mercaptoalkoxy carbonylalkyl, mercaptoalkoxy carbonylalkylenyl, alkoxy carbonyl(amido)alkyl, alkyl carbonyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyl-oxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxyalkyl, hydroxyaryl, mercaptoaryl or carboxyaryl radical having from 1 to 22 carbon atoms; R², R³, R⁴, R⁵, R⁶, and R⁷ are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl, hydroxyaryl,

alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1, R⁶ and R⁷ form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of R¹, R³, and R⁵ joins with R⁷ and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R⁶ and R⁷ are hydroxyl, a is 1 and m is 1, and with the further proviso that when R⁶ □ hydroxyl or mercapto, z is 1;

from greater than 0.5 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate;
and

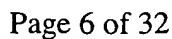
from 0 to about 10 phr of at least one co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite; all based on the weight of the polymer.

Another aspect of the present invention is a stabilizer composition comprising a latent mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, dihydroxyalkyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl), alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl, carboxyalkyl,

Still another aspect of the present invention is a stabilizer composition comprising a latent mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is a hydroxyalkyl, hydroxy(polyalkoxy)alkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzoyloxy(polyalkoxy)alkyl, or alkylenebis-(acyloxyalkyl); R², R³, R⁴, R⁵, R⁶, and R⁷ are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl, hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1, R⁶ and R⁷ form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of R¹, R³, and R⁵ joins with R⁷ and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R⁶ and R⁷ are hydroxyl, a is 1 and m is 1, and with the further proviso that when R⁶ ≠ hydroxyl or mercapto, z is 1; and from greater than about 12.5 wt% to 75 wt% of a mixture of zinc chloride and a zinc carboxylate, based on the total weight of the stabilizer, with or without a co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite.

(6) Issues Presented for Review on Appeal

The following three (3) issues are presented for review on appeal:

A. 35 U.S.C. § 112, first paragraph (new matter)

Whether Claims 1-6, 9-18 and 35 are unpatentable, under 35 USC § 112, first paragraph, for failure to describe the claimed subject matter in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

B. 35 U.S.C. § 102(a), (e) (anticipation)

Whether Claims 19-34 are unpatentable, under 35 USC § 102(e), as being anticipated by either Conroy et al US 6,232,380, or Duvall et al US 2002/0086920.

Whether Claims 1-6, 9-18 and 35 are unpatentable, under 35 USC § 102(a or e), as being anticipated by any of Conroy et al. US 6,232,380, Duval et al. 6,528,566, Duvall et al. US 2002/0086920, or Morton International EP 0 890 608.

C. 35 U.S.C. § 103(a) (obviousness)

Whether Claims 19-34 are unpatentable, under 35 USC § 103(e), as being obvious in view of either Conroy et al. US 6,232,380, or Duvall et al. US 2002/0086920.

Whether Claims 1-6, 9-18 and 35 are unpatentable, under 35 USC § 103(a), as being obvious in view of any of Conroy et al. US 6,232,380, Duval et al. 6,528,566, Duvall et al. US 2002/0086920, or Morton International EP 0 890 608.

(7) Grouping Of Claims

Claims 1-6 and 9-18 stand or fall together.

Claims 19-34 stand or fall together.

Claim 35 stands or falls alone.

(8) Argument

A. 35 U.S.C. § 112, first paragraph (new matter / Claims 1-6, 9-18 and 35)

As will be discussed in further detail hereinafter, all of Claims 1-6, 9-18 and 35 were rejected under 35 U.S.C. § 112, first paragraph, because the Examiner believed that they contained new matter after amendments by Applicant during prosecution. More particularly, the Examiner stated in the final Office Action that the “limitations ‘greater than 0.5 phr’ and ‘greater than 12.5 wt%’ cannot be found in the specification”. First, it is noted that Claims 2-6 and 9-18 each depend, directly or indirectly, from Claim 1 and therefore, they stand or fall along with Claim 1. Additionally, it is noted that independent Claim 35 stands or falls separately from Claims 1-6 and 9-18 because the particular term which was asserted by the Examiner as being new matter in Claims 1-6 and 9-18 (i.e., “from greater than 0.5 phr”) is different from the term asserted by the Examiner as being new matter in Claim 35 (i.e., “greater than 12.5 wt%) and,

therefore, each of these sets of claims requires separate consideration on appeal. In the foregoing circumstances, each of independent Claims 1 and 35 and the Examiner's rejection thereof are discussed in detail hereinafter.

In addition, it is noted that the original disclosure and claims of the present application has been published by the United States Patent and Trademark Office as U.S. Patent Application Publication No. US 2002/091179 (hereinafter, "US 2002/091179"). A copy of US 2002/091179 is attached hereto for reference and will be referred to hereinafter to establish the contents of the original specification and claims of the present application.

Amended Independent Claim 1

Independent Claim 1 relates generally to a polymer composition which comprises, among other things recited therein, a mixture of zinc chloride and a zinc carboxylate. Claim 1 originally recited that the amount of the mixture of zinc chloride and a zinc carboxylate in the polymer composition was "from about 0.005 to about 2 phr" (see US 2002/0091179, Claim 1, and also paragraph [0089]). During prosecution, in the Amendment filed November 20, 2003, Applicant amended that range to "from greater than 0.5 to about 2 phr". Thus, the amended range recited in independent Claim 1 for the amount of said mixture was narrower than, and fully-encompassed by, the broad range recited in the original specification and original Claim 1.

Independent Claim 35

Independent Claim 35 relates generally to a stabilizer composition which comprises, among other things recited therein, a latent mercaptan and a mixture of zinc chloride and a zinc carboxylate. More particularly, Claim 35 was a new claim first presented in the Amendment filed November 20, 2003 and, as explained in that Amendment, it was intended to cover a subset of the subject matter eliminated from independent Claim 19.

Claim 19 was also directed to a stabilizer composition comprising, among other things recited therein, a latent mercaptan and a mixture of zinc chloride and a zinc carboxylate. Amendments to Claim 19 entered by the Amendment filed November 20, 2003, eliminated certain chemical compounds from the covered latent mercaptan formula (i.e., leaving mostly "forward ester"-type mercaptans).

New Claim 35 recited similar subject matter as original Claim 19, except that it included only the latent mercaptan compounds which have been eliminated from amended Claim 19.

Thus, while Claim 35 covers a wholly-encompassed subset of the latent mercaptans covered by original Claim 19, there is no overlap between the subject matter of Claim 35 and the subject matter of amended Claim 19. In addition, new Claim 35 and also includes the additional feature of a specified range of “from greater than about 12.5 wt% to 75 wt%” for the amount of said mixture in the stabilizer. Original Claim 19 contained no such range for the amount of said mixture and original Claim 21, which depended indirectly from Claim 19, recited a range of “from about 0.5 to about 75% . . . by weight” (see US 2002/0091179, Claims 19 and 21 and paragraph [0023]). Thus, the range recited in independent Claim 35 for the amount of said mixture in the stabilizer compound is clearly narrower than, and fully-encompassed by, the broad range recited in the original specification and original Claim 21 and covered by Claim 19.

Legal Argument

It is Applicant’s position that since the above-discussed range limitations included in independent Claims 1 and 35 are narrower than, and fully encompassed by, the range limitations set forth in the original specification and claims, persons of ordinary skill in the art would understand that the invention as recited in each of Claims 1 and 35 was in the possession of Applicant at the time the present application was filed, notwithstanding that the lower limit of each amended range limitation was not explicitly stated in the original specification and claims. It is therefore Applicant’s position that Claims 1 and 35 do not contain new matter and that the rejection of Claims 1-6, 9-18 and 35 was improper.

The Federal Circuit has stated that “the function of the description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him.” In re Wertheim, 541 F.2d 257, 262 (CCPA 1976). Furthermore, “[i]f a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate written description requirement is met.” In re Alton, 76 F.3d 1168, 1175 (Fed.Cir. 1996).

Thus, the question raised by the Examiner’s final rejection of Claims 1-6, 9-18 is whether the disclosure in the original specification of a polymer composition comprising a broader range of “from about 0.005 to about 2 phr” of a mixture of zinc chloride and a zinc carboxylate (see US 2002/0091179, paragraph [0089] and Claim 1) was sufficient so that a person of ordinary

skill in the art would have understood Applicant to have been in possession of a polymer composition comprising a narrower and fully encompassed range of "from greater than 0.5 to about 2 phr" of a mixture of zinc chloride and a zinc carboxylate, as claimed in amended Claim 1 presented in the Amendment filed November 20, 2003. Applicant maintains that the answer to this question is yes.

Similarly, the question raised by the Examiner's final rejection of Claim 35 is whether the disclosure in the original specification of a stabilizer composition comprising a broader range of "from about 0.5 to about 75%" by weight of the mixture of zinc chloride and a zinc carboxylate (see US 2002/0091179, paragraph [0023] and Claim 21) was sufficient so that a person of ordinary skill in the art would have understood Applicant to have been in possession of a stabilizer composition comprising a narrower and fully encompassed range of "from greater than about 12.5 wt% to 75 wt%" of the mixture of zinc chloride and a zinc carboxylate, as claimed in independent Claim 35 newly presented in the Amendment filed November 20, 2003. Applicant maintains that the answer to this question is also yes.

In In re Alton, 76 F.3d 1168, (Fed.Cir. 1996), the Federal Circuit explained the burden of an Examiner who, as in the case at hand, rejects a claim as containing new matter, under 35 U.S.C. § 112, first paragraph, as follows:

The examiner (or the Board, if the Board is the first body to raise a particular ground for rejection) "bears the initial burden . . . of presenting a prima facie case of unpatentability." Insofar as the written description requirement is concerned, that burden is discharged by "presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims." Thus, the burden placed on the examiner varies, depending upon what the applicant claims. If the applicant claims embodiments of the invention that are completely outside the scope of the specification, then the examiner or Board need only establish this fact to make out a prima facie case. If, on the other hand, the specification contains a description of the claimed invention, albeit not in *ipsis verbis* (in the identical words), then the examiner or Board, in order to meet the burden of proof, must provide reasons why one of ordinary skill in the art would not consider the description sufficient. Once the examiner or Board carries the burden of making out a prima facie case of unpatentability, "the burden of coming forward with evidence or argument shifts to the applicant." To overcome a prima facie case, an applicant must show that the invention as claimed is adequately described to one skilled in the art. "After evidence or argument is submitted by the applicant in response, patentability is

determined on the totality of the record, by a preponderance of the evidence with due consideration to persuasiveness of argument." Id., at 1175 (citations omitted).

Further clarification on this point can be obtained from the Court of Customs and Patent Appeals in In re Voss, 557 F.2d 812, 817 (C.C.P.A. 1977):

. . . mere lack of literal support is not enough to carry the PTO's initial burden. In re Wertheim, 541 F.2d 257, 265 (CCPA 1976). Nor is this a situation where the claims read on embodiments outside the scope of the description. See the treatment of claims 1 and 4 in In re Wertheim, 541 F.2d 257, 263-64 (CCPA 1976). Appellant's parent application describes the invention in terms broader than those in the claims. In re Voss, at 817.

The Board of Patent Appeals and Interferences has acknowledged that "[a]pplicants frequently discover during the course of prosecution that only a part of what they invented and originally claimed is patentable." In re Johnson, 558 F.2d 1008, 1018 (CCPA 1971). This, of course, necessitates that applicants make amendments to the claims during prosecution. The general rule is that a patentee may claim less than he may have the right to claim without showing criticality. See Ex Parte Dresser Ind. Inc., 224 U.S.P.Q. (BNA) 841 (Bd. Pat. App. Interf. 1983) (citing In re Johnson, 558 F.2d 1008, 1018 (CCPA 1971)).

More particularly, where the original claims or specification disclose a broader limitation and applicants later amend the claims to recite a narrower limitation, which is fully encompassed by the original limitation, even where the narrower limitation was not previously stated verbatim, the narrower limitation has been held to have been adequately disclosed by the original claims and specification and, therefore, the narrower limitation does not constitute new matter.

For example, where the original specification of a parent application disclosed broader genus and applicants subsequently amended claims of child application to exclude certain genus members, thereby creating a subgenus in the amended claim, the court found that the original parent specification "having described the whole, necessarily described the part remaining" and that applicants were "merely excising the invention of another" by the claim amendments and, therefore, the subgenus was not new matter. In re Johnson, 558 F.2d 1008, 1018-1019 (CCPA 1971). In In re Blaser, 556 F.2d 534, 538 (CCPA 1977), the court found that the temperature range of "80°C to 200°C" recited in an amended claim was supported by the earlier disclosure of

the broader range of “60°C to 200°C” in applicants’ parent application, even though the narrower range of 80°C to 200°C had not been explicitly disclosed in the earlier parent application. In re Wertheim was another case directly on point with the present matter. In that case, the parent specification disclosed a solids content ranging from 25% to 60%, and the claims of a child application that recited a narrower range of from 35% to 60% were found to be supported by the earlier parent specification, while claims reciting a range of “at least 35%” were found not to be supported because the upper limit of the claimed extended well beyond the upper limit of the range disclosed by the earlier parent specification). Id., at 263, 264-65.

Thus, where the claims read on embodiments within the scope of the original description, the Examiner must do more than state the absence of verbatim support for the particular limitations in question and must explain why persons of ordinary skill would not have understood the claimed limitation to have been included in the originally disclosed subject matter. In many of the cases discussed above, the claimed limitations were narrower than, i.e., fully encompassed by, the descriptions provided in the original as-filed disclosures and the courts, therefore, found that the amended claims were supported by the original disclosures and did not contain new matter.

Similarly, in the present application, as discussed above, both of the limitations identified by the Examiner as new matter (i.e., “from greater than 0.5 to about 2 phr” and “greater than about 12.5 wt% to 75 wt%”) were each supported by and fully encompassed within the broader limitations that were originally disclosed in the as-filed specification and claims. There could be no doubt in the minds of persons of ordinary skill in the art that the amended narrower claimed limitations were included in Applicant’s originally described invention. The Examiner failed to advance any explanation as to why this would not be true and has, therefore, failed to meet his burden concerning the rejection of Claims 1-6, 9-18 and 35 under 35 U.S.C. § 112, first paragraph. It is respectfully submitted that these rejections were improper and should be withdrawn.

B. 35 U.S.C. § 102(a), (e) (anticipation / Claims 19-34 and Claims 1-6, 9-18 and 35)

Claims 19-34

Claims 19-34 have been finally rejected, under 35 U.S.C. § 102(e), as being anticipated by either Conroy et al US 6,232,380, or Duvall et al US 2002/0086920.

The relevant portions of 35 U.S.C. § 102(e) state as follows:

“A person shall be entitled to a patent unless . . .

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent . . . ; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent”

35 U.S.C. § 102(e) (emphasis added). In this regard, based upon closer review of the inventorship of the present application and the inventorship of US 6,232,380, it is believed that US 6,232,380 does not constitute prior art under 35 U.S.C. § 102(e). This is because US 6,232,380 was not granted on an application for patent “by another”, as required by 35 U.S.C. § 102(e)(2). In particular, the Applicant/inventor of the present application is Gene Kelly Norris, while the Applicant/inventor of the application from which US 6,232,380 was granted was also Gene K. Norris, along with Gary M. Conroy and Tod C. Duvall. Thus US 6,232,380 does not qualify as prior art under 35 U.S.C. § 102(e) and Applicant is entitled to withdrawal of the rejection of Claims 19-34 under 35 U.S.C. § 102(e).

With reference now to published patent application US 2002/0086920, it is well-established that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference.” Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987). Applicant asserts that US 2002/0086920 does not anticipate Claims 19-34 because it fails to disclose all the features recited in independent Claim 19 since it fails to disclose the inclusion of a mixture of a zinc chloride and a zinc carboxylate. In paragraph 5 of the final Office Action dated January 12, 2004, the Examiner characterizes US 2002/0086920 as disclosing a zinc ionomer which can be a physical mixture of a zinc salt of a carboxylic acid and a zinc salt of a polyethylene, and that the ionomer

is a zinc carboxylate, but this entirely misses the point that zinc chloride, which is a required component of the mixture utilized in the present invention, is absent from the ionomer of US 2002/0086920.

More particularly, US 2002/00869320 discloses a PVC (poly(vinyl)chloride) resin composition which comprises a latent (blocked) mercaptan and an effective amount of a zinc ionomer as the sole-metal containing stabilizer. The terms “zinc ionomer” and “zinc salt of oxidized polyethylene” are used interchangeably in this reference (see US 2002/0086920, Abstract, paragraph [0006] and Claim 1). Moreover, the term “zinc ionomer” is defined in paragraph [0050] of US 2002/0086920 as “. . . a salt in which both of the zinc valences are paired with carboxylate anions from the oxidized polyethylene, a mixed salt in which one of the zinc valences is paired with a carboxylate ion having 7 to 18 carbon atoms and the other is paired with a carboxylate ion from an oxidized polyethylene, or a physical mixture of a zinc salt of a carboxylic acid having from 7 to 18 carbon atoms and a zinc salt [of] an oxidized polyethylene”. Thus, the only relevant “mixture” disclosed in US 2002/00869320 is a mixture of a zinc salt of a carboxylic acid (having from 7 to 18 carbon atoms) and a zinc salt of an oxidized polyethylene and, since zinc chloride is absent from the foregoing mixture (since chloride is not the same as, nor analogous to, a carboxylate ion from the oxidized polyethylene, nor a carboxylate ion having 7 to 18 carbon atoms), it is clearly different from the mixture of zinc chloride and a zinc carboxylate required by the present invention and therefore cannot be relied upon to support anticipation of the present invention as recited in independent Claim 19 and Claims 20-34 which depend directly or indirectly therefrom.

US 2002/0086920, paragraph [0052], also provides the following additional disclosure concerning preparation of suitable zinc ionomers: “[t]he stoichiometric amount of zinc oxide, zinc chloride or a zinc carboxylate/chloride is reacted with the oxidized polyethylene to prepare the desired zinc salt. The zinc carboxylate/chloride is prepared from zinc chloride and less than the stoichiometric amount of the desired carboxylic acid so that the remaining chloride ions may react with the oxidized polyethylene to form a mixed salt as an ionomer useful in this invention.” Thus, the “zinc ionomer” described in US 2002/0086920 is clearly different from the “mixture of zinc chloride and a zinc carboxylate” required by the present invention because in all cases the zinc ionomer is produced, at least in part, by reaction with oxidized polyethylene, whereas the

mixture of the present invention never requires reaction with any other component. Furthermore, the zinc ionomer described in US 2002/0086920 may or may not include chloride ions which, even if present, react with the oxidized polyethylene, whereas a zinc chloride compound is a required component of the mixture utilized in the present invention, as recited in independent Claim 19. In the foregoing circumstances, applicant asserts that while US 2002/0086920 discloses the use of certain zinc compounds as useful for stabilizing PVC resins, the zinc compounds disclosed therein are zinc ionomers and, according to the definitions and provided therein, they are not the same as, nor are they analogous to, the “mixture of zinc chloride and a zinc carboxylate” required by the present invention, as recited in independent Claim 19.

Based upon the foregoing distinctions, Applicant believes that US 2002/0086920 fails to anticipate the present invention as recited in independent Claim 19, as well as Claims 20-34 which depend directly or indirectly therefrom. Thus, Applicant further believes that the rejection of Claims 19-34, under 35 U.S.C. § 102(e), based upon US 2002/0086920, should be withdrawn.

Claims 1-6, 9-18 and 35

Claims 1-6, 9-18 and 35 have been finally rejected, under 35 USC § 102(a or e), as being anticipated, alternatively, by Conroy et al. US 6,232,380, Duval et al. 6,528,566, Duvall et al. US 2002/0086920, or Morton International EP 0 890 608.

The relevant statutory language is as follows:

“A person shall be entitled to a patent unless . . .

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

* * *

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent . . . ; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent”

35 U.S.C. § 102 (emphasis added).

It is submitted that US 6,232,380 does not constitute prior art under either of §§ 102(a) or (e). The presumptive date of invention for the present application is the earliest effective filing date, which is October 24, 2000. US 6,232,380 was issued on May 15, 2001, which is after October 24, 2000 and, therefore, not before the invention by Applicant in this case. Furthermore, as discussed hereinabove in connection with the rejections Claims 19-34 under §102(e), US 6,232,380 was issued from an application that was not filed by another and, therefore, the subject matter disclosed therein was also not known or used “by others”. Thus, US 6,232,380 does not constitute prior art under either § 102(a) (the invention was not known or used by others, nor was it patented, before the invention thereof by Applicant), or § 102(e) (the cited patent was not granted on an application for patent by another). Applicant believes that, in the foregoing circumstances, the rejection of Claims 1-6, 9-18 and 35, under 35 USC § 102(a) or (e), based on US 6,232,380 should be withdrawn.

The standard for anticipation under 35 U.S.C. 102 is that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference,” Verdegaal Bros. v. Union Oil Co. of California, at 631. As explained in further detail hereinafter, none of the remaining three references cited by the Examiner (i.e., US 6,528,566, US 2002/0086920, and EP 0 890 608) fulfills the aforesaid requirement because none of them describe, expressly or inherently, the feature of the present invention, as recited in independent Claim 1, that the polymer composition comprises a latent mercaptan of specified formula and from greater than 0.5 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate. Nor do any of the three remaining references describe, expressly or inherently, the feature of the present invention, as recited in independent Claim 35, that the stabilizer composition comprising a latent mercaptan of specified structure and “from greater than about 12.5 wt% to 75 wt% of a mixture of zinc chloride and a zinc carboxylate, based on the total weight of the stabilizer”.

Applicant asserts that 2002/0086920 fails to anticipate Claims 1-6, 9-18 and 35 because it fails to disclose all the features recited in each of independent Claims 1 and 35, particularly because it fails to disclose the inclusion of a mixture of a zinc chloride and a zinc carboxylate.

The Examiner's characterization of the zinc ionomer disclosed in US 2002/0086920 entirely misses the point that zinc chloride, which is a required component of the mixture utilized in the present invention, is absent from the ionomer stabilizer disclosed in US 2002/0086920. The present invention as recited in each of independent Claims 1 and 35, on the other hand, require inclusion of "a mixture of zinc chloride and a zinc carboxylate". Based upon the foregoing distinctions, which were already discussed in great detail hereinabove in connection with the rejection of Claims 19-34 under 35 U.S.C. § 102(e), Applicant believes that US 2002/0086920 also fails to anticipate the present invention as recited in independent Claim 1, as well as Claims 2-6 and 9-18 which depend directly or indirectly therefrom. Applicant further believes that US 2002/0086920 fails to anticipate the present invention as recited in independent Claim 35. Thus, Applicant asserts that the rejections of Claims 1-6, 9-18 and 35, under 35 U.S.C. § 102(a or e), based upon US 2002/0086920, should be withdrawn.

US 6,528,566 and EP 0 890 608 both disclose polymer compositions comprising, among other things, from about 0.01% to less than 0.5% by weight, based on the halogen-containing polymer in the polymer composition, of a metal-based stabilizer or Lewis acid, or a combination thereof (see, for example, US 6,528,566, Col. 9, line 66 to Col. 10, line 36, and Claim 1; and EP 0 890 608, page 9, lines 29-47, and Claim 1). In both US 6,528,566 and EP 0 890 608, the metal-based stabilizers are disclosed as including various metal salt stabilizers, such as zinc carboxylate and other metal-containing compounds, and the Lewis acids are disclosed as including zinc chloride, as well as boron trifluoride, aluminum chloride, and methyltin trichloride. Furthermore, Duvall et al. '566 and Morton International '608 both disclose stabilizer compositions having an amount of blocked mercaptan present therein between about 87.5 wt% and about 98.5 wt%, with the balance (i.e., from 1.5 wt% to 12.5 wt%) comprising the metal-based stabilizer or Lewis acid (see Duvall et al. '566 at Column 4, lines 54-61; and Morton International '608 at page 3, lines 46-48).

In contrast, the polymer composition of the present invention, as recited in pending independent Claim 1, the mixture of zinc chloride and a zinc carboxylate is present in an amount of from greater than 0.5 to about 2 phr. In this regard, it is noted that where the metal in the metal-based stabilizer and in the Lewis acid is zinc, amount measured in phr and in weight percent based on the weight of the halogen-containing polymer are synonymous and, therefore,

directly comparable. Thus, the amount of zinc compounds (i.e., mixture of zinc chloride and zinc carboxylate) in the polymer composition of the present invention, as recited by amended independent Claim 1 falls outside the range taught by either US 6,528,566 or EP 0 890 608. In the foregoing circumstances, it is respectfully submitted that neither US 6,528,566 or EP 0 890 608 anticipate the present invention as recited in amended independent Claim 1. Thus, Applicant asserts that the rejection, under 35 U.S.C. § 102(a or e) and based upon US 6,528,566 or EP 0 890 608, of independent Claim 1, as well as Claims 2-6 and 9-18 which depend directly or indirectly therefrom, should be withdrawn.

Also in contrast to the disclosures of Duvall et al. '566 and Morton International '608, the stabilizer composition of the present invention, as recited in pending independent Claim 35, comprises from greater than 12.5 to 75 wt% of a mixture of zinc chloride and a zinc carboxylate. The advantages of using higher amounts of the mixture of zinc chloride and a zinc carboxylate in the stabilizer than the amounts disclosed in the cited prior art have been demonstrated in Exhibits A and B of the Amendment filed November 2003 and are discussed therein. (Copies of Exhibits A and B are also attached hereto for convenient reference). Thus, it is submitted that neither Duvall et al. '566 or Morton International '608 anticipate the stabilizer composition of the present invention as recited in new Claim 35. Thus, Applicant asserts that the rejection, under 35 U.S.C. § 102(a or e) and based upon US 6,528,566 or EP 0 890 608, of independent Claim 35 should be withdrawn.

C. 35 U.S.C. § 103(a) (obviousness / Claims 19-34 and Claims 1-6, 9-18 and 35)

Claims 1-6 and 9-35

Claims 19-34 have been finally rejected, under 35 USC § 103(a), as being obvious in view of either Conroy et al. US 6,232,380, or Duvall et al. US 2002/0086920.

Claims 1-6, 9-18 and 35 have been finally rejected, under 35 USC § 103(a), as also being obvious in view of any of Conroy et al. US 6,232,380, or Duvall et al. US 2002/0086920, as well as in view of Duval et al. 6,528,566, or Morton International EP 0 890 608.

Claims 1-6 and 9-35 (in view of US 6,232,380, or Duvall et al. US 2002/0086920)

It is submitted that US 6,232,380 cannot be relied upon in support of the rejection of claims of the present application under 35 U.S.C. § 103(a) because it does not qualify as prior art under 35 U.S.C. As explained in M.P.E.P § 2141.01 I:

“Before answering *Graham*’s ‘content’ inquiry, it must be known whether a patent or publication is in the prior art under 35 U.S.C. § 102.” *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir.), cert. Denied, 481 U.S. 1052 (1987). Subject matter that is prior art under 35 U.S.C. § 102 can be used to support a rejection under section 103.

Consequently, subject matter that does not qualify as prior art under 35 U.S.C. § 102 cannot be used to support a rejection under section 103. Furthermore, as discussed hereinabove, US 6,232,380 was not granted on an application for patent “by another”, as required by 35 U.S.C. § 102(e)(2) and, therefore, this patent does not constitute prior art under 35 U.S.C. § 102(e). Thus, US 6,232,380 cannot be relied upon to support of rejections of Claims 1-6 and 9-35, under 35 U.S.C. § 103(a). In these circumstances, it is believed that Applicant is entitled to withdrawal of the rejections of Claims 1-6 and 9-35 based upon US 6,232,380.

Applicant asserts that US 2002/0086920 fails to make obvious Claims 1-6, 9-18 and 35 because it fails to provide any suggestion or motivation, either expressly in the document itself or based upon the knowledge generally available to persons of ordinary skill in the relevant art, to modify its teachings to add the missing feature of a mixture of a zinc chloride and a zinc carboxylate. As discussed above, the Examiner’s characterization of the zinc ionomer disclosed in US 2002/0086920 entirely misses the point that zinc chloride, which is a required component of the mixture utilized in the present invention, is absent from the ionomer stabilizer disclosed in US 2002/0086920. The present invention as recited in each of independent Claims 1, 19 and 35, on the other hand, require inclusion of “a mixture of zinc chloride and a zinc carboxylate”. There is no suggestion or motivation to modify the ionomer stabilizer disclosed in US 2002/0086920 to include zinc chloride. The zinc salts described in US 2002/0086920 wherein both of the zinc valences are paired with carboxylate anions from the oxidized polyethylene, or where one of the zinc valences is paired with a carboxylate ion having 7 to 18 carbon atoms and the other is paired with a carboxylate ion from an oxidized polyethylene are clearly not the same as, nor equivalent to, zinc chloride.

Moreover, it is a matter of common knowledge among persons of ordinary skill in the relevant art that Lewis acids, such as zinc chloride, tend to cause chemical degradation on a molecular level, when added to halogen-containing polymer resins, such as PVC. Thus, the general knowledge of persons of ordinary skill teaches against addition of Lewis acids, including zinc chloride, as a means of enhancing the properties of PVC resins. On the other hand, the present invention, as recited in Claim 1 and described in the present application, demonstrates that there is a clear advantage to adding minor amounts of zinc chloride, along with a zinc carboxylate (i.e., from greater than 0.5 to 2 phr), to halogen-containing polymer resins, such as PVC.

In the foregoing circumstances, Applicant believes that US 2002/0086920 fails to make obvious the present invention as recited in independent Claim 1, as well as Claims 2-6 and 9-18 which depend directly or indirectly therefrom. Applicant further believes that US 2002/0086920 fails to make obvious the present invention as recited in independent Claim 19, as well as Claims 20-34 which depend directly or indirectly therefrom, and as recited in independent Claim 35. Thus, Applicant asserts that the rejections of Claims 1-6 and 9-35, under 35 U.S.C. § 103(a), based upon US 2002/0086920, should be withdrawn.

Claims 1-6, 9-18 and 35 (in view of US 6,528,566 nor EP 0 890 608)

Neither US 6,528,566 or EP 0 890 608 contain any suggestion or indication, either explicit in the documents themselves, nor based upon the knowledge generally available to persons of ordinary skill in the art, that a different (i.e., greater) amount of zinc compounds, such as the amount recited in independent Claims 1 and 35 of the present application, would provide greater benefits than the lesser and non-overlapping amounts disclosed in US 6,528,566 or EP 0 890 608. In fact, as determined by Applicant and demonstrated by the results displayed in Exhibits A and B of the Amendment filed November 2003, the early color of the inventive polymer composition is significantly improved by the inclusion of a greater amount of zinc compounds (i.e., from greater than 0.5 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate) than is disclosed in either US 6,528,566 or EP 0 890 608 (i.e., both less than 0.5 %/phr). See also, pages 1-2 of the published version of the present specification, US 2002/0091179, paragraph [0011], for a discussion of the importance of early color and the synergy of the mixture of zinc chloride and a zinc carboxylate.

In particular, Exhibit A (forward esters) and Exhibit B (reverse esters) previously submitted with the Amendment filed November 2003, show polymer compositions which include poly(vinyl) chloride ("PVC") as the halogen-containing polymer, either forward or reverse esters as the blocked mercaptan (respectively), and varying amounts of a mixture of zinc chloride and a zinc carboxylate at fixed percentages (i.e., 20% zinc chloride and 80% zinc laureate). As discussed at length in the Amendment filed November 2003, Exhibits A and B, which show the early color and color deterioration over time, demonstrate that greater amounts of the combined zinc compounds (i.e., mixture of zinc chloride and zinc carboxylate) than are disclosed by either US 6,528,566 or EP 0 890 608, achieve better, lighter early color of the polymer composition. In particular, persons having ordinary skill in the art recognize that the polymer compositions of the chips in each of Exhibits A and B, containing only 0.5 phr (%) of zinc compounds, have an early color that is too dark and, therefore, is not suitable for use in producing white PVC finished goods, but that the polymer compositions of the present invention, containing greater than 0.5 phr (%) (i.e., rows 2-5, and especially rows 4 and 5 in each of Exhibits A and B), are suitable for such use.

In the foregoing circumstances, the polymer composition of the present invention, as recited in amended independent Claim 1 and which includes from greater than 0.5 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate, is not made obvious by the disclosures of either US 6,528,566 or EP 0 890 608. This is because there is no indication, suggestion or motivation in either reference, either explicitly or based upon the knowledge generally available to persons of ordinary skill in the relevant art, that the higher zinc compound content of the polymer composition of the present invention would provide benefits and improvements over the amounts disclosed in either of these references. As demonstrated by the results discussed in the Amendment filed November 2003 and presented in Exhibits A and B thereof, such benefits and improvements are achieved by the present invention as recited in independent Claims 1 and 35. The Examiner has failed to explain or point out any suggestion or motivation for persons of ordinary skill to believe that even greater amounts of the mixture of zinc chloride and a zinc carboxylate than previously disclosed in the cited references would produce improved results over those disclosures. It is respectfully submitted that, amended independent Claim 1, as well as dependent Claims 2-6 and 9-18 which depend either directly or indirectly from Claim 1, are

allowable over both US 6,528,566 and EP 0 890 608. It is further believed that independent Claim 35 is allowable over both US 6,528,566 and EP 0 890 608. Thus, it is believed that the rejection of Claims 1-6, 9-18 and 35, under 35 USC § 103(a), based on Duval et al. 6,528,566 and Morton International EP 0 890 608 should be withdrawn.

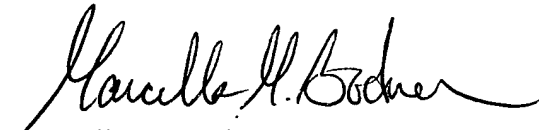
CONCLUSION

Based on the foregoing, Appellant respectfully submits that pending Claims 1-6 and 9-35 do not contain new matter in violation of 35 U.S.C. § 112, first paragraph and are not anticipated or made obvious by any of the references cited by the Examiner. It is believed that pending Claims 1-6 and 9-35 are allowable over each of the cited references, for the reasons discussed hereinabove. Appellant respectfully requests the Board to pass the pending claims to allowance.

Enclosed herewith, Appellant have filed a Petition for Extension of Time and a Certificate of Mailing to establish the timely filing of this Appeal Brief, with a one-month extension of time, to and including **August 12, 2004**.

The Commissioner is hereby authorized to charge any additional fee(s) which may be required, or to credit any overpayment(s), to **Deposit Account 18-1850**.

Respectfully submitted,

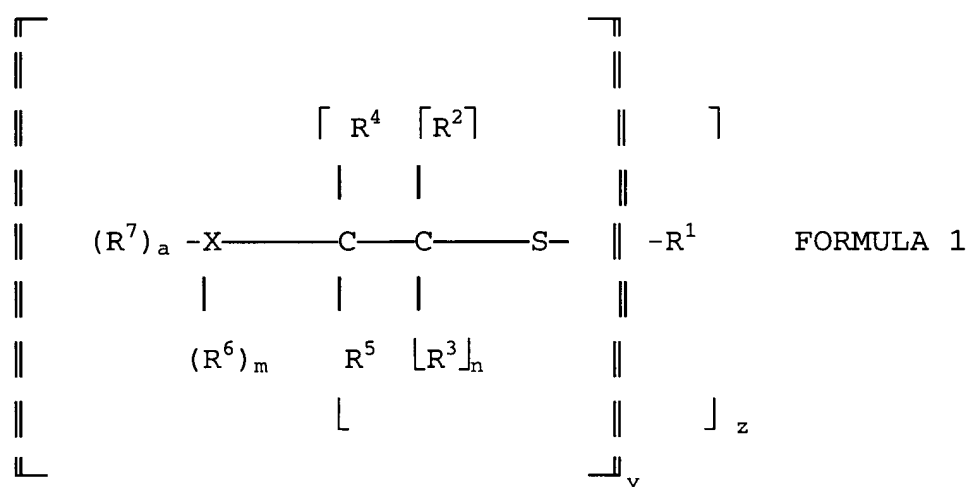


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August 5, 2004

APPENDIX

1. A polymer composition normally susceptible to heat-induced decomposition comprising a halogen-containing polymer, the degradation products of a blocked mercaptan present during processing of the composition at an elevated temperature, said products including a free mercaptan; said blocked mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, hydroxyalkyl, dihydroxyalkyl, hydroxy(polyalkoxy)alkyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl), alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl, carboxyalkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzoyloxy(polyalkoxy)alkyl, alkylenebis-(acyloxyalkyl), alkoxycarbonylalkyl, alkoxycarbonylalkylenyl, hydroxyalkoxycarbonylalkyl, hydroxy(polyalkoxy)carbonylalkyl, mercaptoalkyl, mercaptoalkylenyl, mercaptoalkoxycarbonylalkyl,

mercaptoalkoxycarbonylalkylenyl, alkoxy carbonyl(amido)alkyl, alkylcarbonyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxyalkyl, hydroxyaryl, mercaptoaryl or carboxyaryl radical having from 1 to 22 carbon atoms; R^2 , R^3 , R^4 , R^5 , R^6 , and R^7 are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl, hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1, R^6 and R^7 form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of R^1 , R^3 , and R^5 joins with R^7 and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R^6 and R^7 are hydroxyl, a is 1 and m is 1, and with the further proviso that when $R^6 \neq$ hydroxyl or mercapto, z is 1;

from greater than 0.5 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate; and

from 0 to about 10 phr of at least one co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite; all based on the weight of the polymer.

2. The composition of claim 1 wherein the amount of the blocked mercaptan is from about 0.05 to about 4 phr, by weight, of the polymer.

3. The composition of claim 2 wherein the amount of the blocked mercaptan is from about 0.1 to about 3 phr.

4. The composition of claim 1 wherein the amounts of zinc

carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about 85%, respectively, of the total amount of zinc.

5. The composition of claim 1 wherein the amount of the zinc chloride/zinc carboxylate mixture is from greater than 0.5 to about 1.0 phr.

6. The composition of claim 1 wherein the amount of said co-stabilizer is 0.

9. The composition of claim 1 wherein R^1 is an acyloxyalkyl group.

10. The composition of claim 1 wherein R^1 is a hydroxyalkyl group.

11. The composition of claim 1 wherein R^1 is alkoxycarbonyl-alkyl.

12. The composition of claim 6 wherein R^1 is an acyloxyalkyl group.

13. The composition of claim 6 wherein R^1 is a hydroxyalkyl group.

14. The composition of claim 6 wherein R^1 is an alkoxy-carbonylalkyl group.

15. The composition of claim 12 wherein the amounts of the zinc carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about

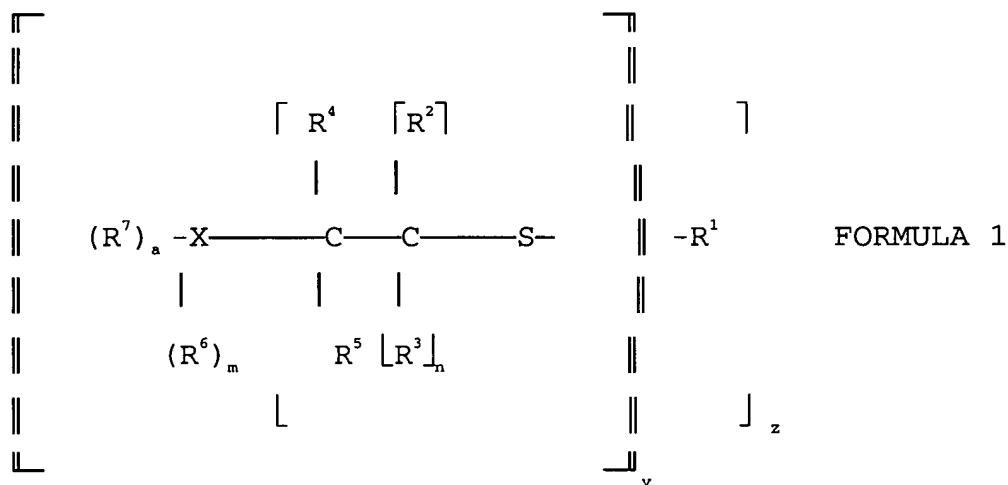
85%, respectively, of the total amount of zinc.

16. The composition of claim 15 wherein the amount of the zinc chloride/zinc carboxylate mixture is from greater than 0.5 to about 1.0 phr.

17. The composition of claim 14 wherein the amounts of the zinc carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about 85%, respectively, of the total amount of zinc.

18. The composition of claim 17 wherein the amount of the zinc chloride/zinc carboxylate mixture is from greater than 0.5 to about 1.0 phr.

19. A stabilizer composition comprising a latent mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, dihydroxyalkyl, alkoxyalkyl, hydroxyalkoxyalkyl,

alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl),
alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl,
carboxyalkyl, alkoxycarbonylalkyl, alkoxycarbonylalkylenyl,
hydroxyalkoxycarbonylalkyl, hydroxy(polyalkoxy)carbonylalkyl,
mercaptoalkyl, mercaptoalkylenyl, mercaptoalkoxycarbonylalkyl,
mercaptoalkoxycarbonylalkylenyl, alkoxycarbonyl(amido)alkyl,
alkylcarbonyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyl-
oxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxyalkyl,
hydroxyaryl, mercaptoaryl or carboxyaryl radical having from 1 to
22 carbon atoms; R^2 , R^3 , R^4 , R^5 , R^6 , and R^7 are independently
hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl,
haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl,
hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups
having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl,
hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a
heteroatom, with the option that when a is 1 and m is 1, R^6 and R^7
form a heterocyclic moiety in conjunction with X as nitrogen, and
with the further option that when a = 1 and m = 0, one of R^1 , R^3 ,
and R^5 joins with R^7 and X to form a heterocyclic moiety with X as
a heteroatom selected from the group consisting of oxygen and
sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R^6
and R^7 are hydroxyl, a is 1 and m is 1, and with the further
proviso that when $R^6 \neq$ hydroxyl or mercapto, z is 1; and a
mixture of zinc chloride and a zinc carboxylate, with or without
a co-stabilizer selected from the group consisting of an epoxy
compound and an organic phosphite.

20. The stabilizer composition of claim 19 wherein the latent
mercaptan constitutes from about 25 % to about 99.5 % of the
total weight.

21. The stabilizer composition of claim 20 comprising from about
0.5 to about 75% of the mixture of zinc carboxylate and zinc
chloride by weight.

22. The stabilizer composition of claim 19 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the chloride, expressed as zinc ion.

23. The stabilizer composition of claim 19 wherein the zinc carboxylate and zinc chloride mixture contains from about 35 to about 60% of carboxylate and from about 40 to about 65% of the chloride, expressed as zinc ion.

24. The stabilizer composition of claim 19 without said co-stabilizer.

25. The stabilizer composition of claim 19 comprising from about 0.5 to about 75% of the mixture of zinc carboxylate and zinc chloride by weight.

26. The stabilizer composition of claim 23 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

27. The stabilizer composition of claim 24 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

28. The stabilizer composition of claim 25 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

29. The stabilizer composition of claim 21 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the

chloride, by weight, expressed as zinc ion.

30. The stabilizer composition of claim 21 wherein the zinc carboxylate and zinc chloride mixture contains from about 35 to about 60% of carboxylate and from about 40 to about 65% of the chloride, by weight, expressed as zinc ion.

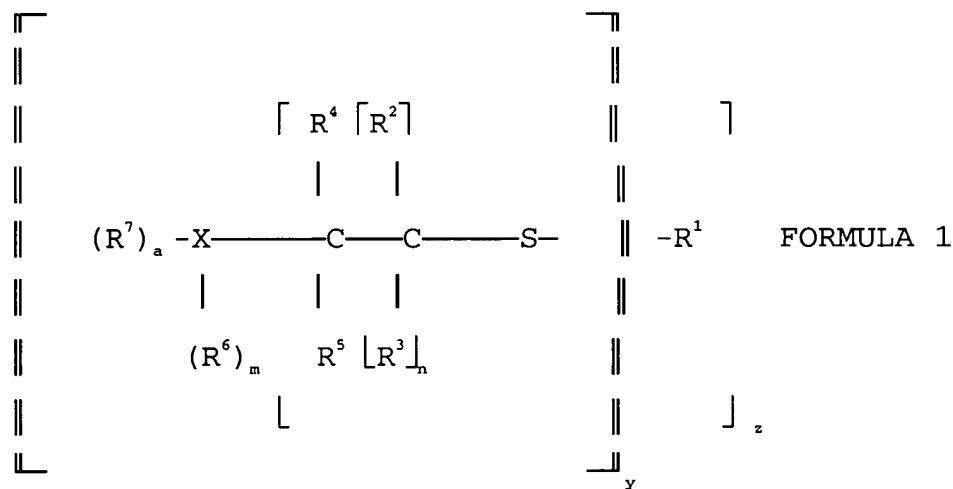
31. The stabilizer composition of claim 24 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the chloride, by weight, expressed as zinc ion.

32. The stabilizer composition of claim 24 wherein the zinc carboxylate and zinc chloride mixture contains from about 35 to about 60% of carboxylate and from about 40 to about 65% of the chloride, by weight, expressed as zinc ion.

33. The stabilizer composition of claim 31 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

34. The stabilizer composition of claim 32 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

35. A stabilizer composition comprising a latent mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R¹ is a hydroxyalkyl, hydroxy(polyalkoxy)alkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzoyloxy(polyalkoxy)alkyl, or alkylenebis-(acyloxyalkyl); R², R³, R⁴, R⁵, R⁶, and R⁷ are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl, hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1, R⁶ and R⁷ form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of R¹, R³, and R⁵ joins with R⁷ and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R⁶ and R⁷ are hydroxyl, a is 1 and m is 1, and with the further proviso that when R⁶ ≠ hydroxyl or

mercapto, z is 1; and from greater than about 12.5 wt% to 75 wt% of a mixture of zinc chloride and a zinc carboxylate, based on the total weight of the stabilizer, with or without a co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite.

Test: BRABENDER NO. 1
 Conditions: 190 C 374 F 60 RPM 67 G
 Test Performed By: DM
 Test Requested By: GKN
 Project: 206

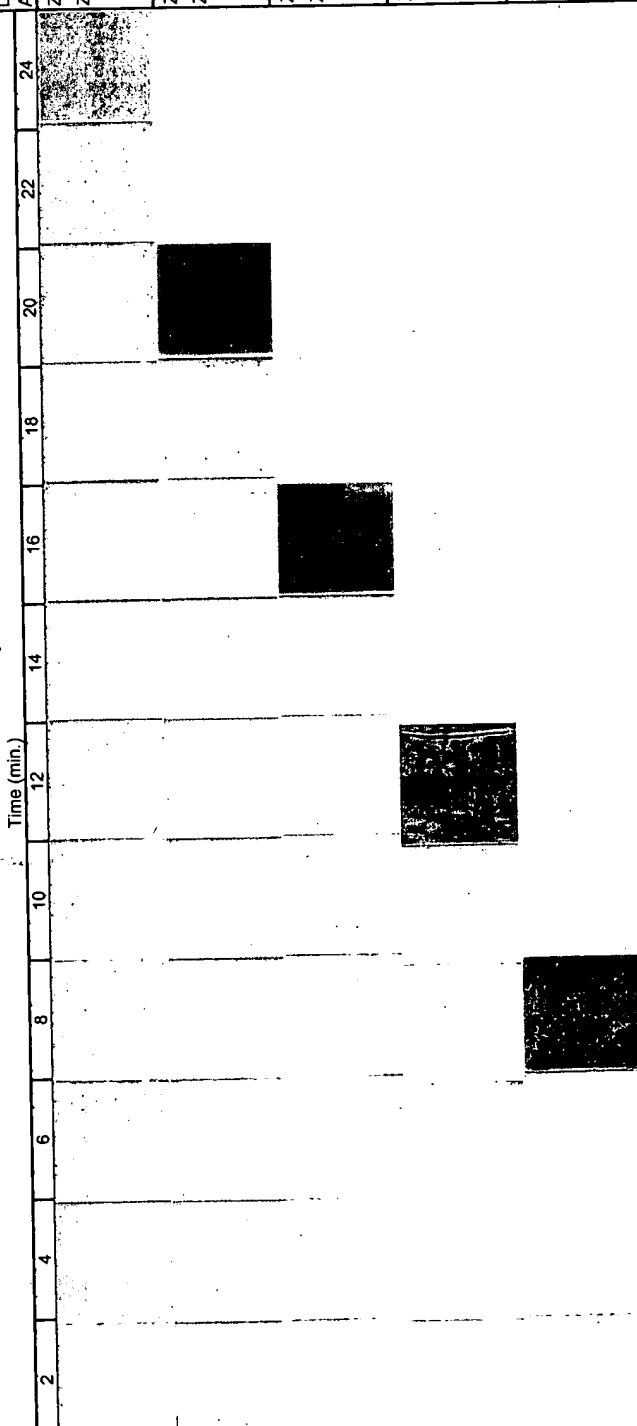


EXHIBIT A

(forward esters)

BORDEN BCP 59	100.00
K 120 N	1.00
OMYA FT	3.00
TIO2	0.40
SYNPRON 15F	0.70
XL 165	0.20
AC 629A	0.20
LM/TO 26	1.50
LUBRIOL 362	1.35
ALCAMIZER 1	1.50
ZINC LAURATE	0.40
ZN CHLORIDE (50% IN H2O)	0.20
0.5 phr (%)	
ZINC LAURATE	0.60
ZN CHLORIDE (50% IN H2O)	0.30
0.75 phr (%)	
ZINC LAURATE	0.80
ZN CHLORIDE (50% IN H2O)	0.40
1.0 phr (%)	
ZINC LAURATE	1.20
ZN CHLORIDE (50% IN H2O)	0.60
1.5 phr (%)	
ZINC LAURATE	1.60
ZN CHLORIDE (50% IN H2O)	0.80
2.0 phr (%)	



Test: BRABENDER NO. 1
Conditions: 190 C 374 F 60 RPM 67 G
Test Performed By: DM
Test Requested By: GKN
Project: 206

		Time (min.)													
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